

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**(Case No. 00-713-i12)**

For: NANOPARTICLES HAVING  
OLIGONUCLEOTIDES ATTACHED  
THERETO AND USES THEREFOR

Confirmation No. 9821

Commissioner for Patents  
P.O. Box 1450  
Commissioner for Patents

In regard to the above-identified application, we are transmitting herewith the attached:

1.
  - a. Letter;
  - b. Copy of Sixth Supplemental Information Disclosure Statement with copies of 29 references; and
  - c. Return Receipt Postcard
2. With respect to fees:
  - a) No fees are due at the present time.
  - b) **General Authorization:** Please charge any underpayment or credit any overpayment our Deposit Account. No. 13-2490.
3. CERTIFICATE OF MAILING UNDER 37 CFR § 1.8: The undersigned hereby certifies that this Transmittal Letter and the paper, as described in paragraph 1 hereinabove, are being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 17 day of September, 2004.

Date:

Registration No. 35,285



**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
(Case No. 00-713-i12)

In re Application of:	)	
	)	
Mirkin et al.	)	Examiner: Alexander H. Spiegler
	)	
Application No.: 09/975,376	)	Art Unit: 1637
	)	
Filing Date: October 11, 2001	)	Confirmation No.: 9821
	)	
For: Nanoparticles Having	)	
Oligonucleotides Attached Thereto	)	
And Uses Therefor	)	

**LETTER**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

As requested by the Examiner in the Office Action dated March 16, 2004, attached please find a second copy of the references for the 6<sup>th</sup> Supp. IDS is attached. An original copy of the references was already sent to the Patent Office as acknowledged in the attached copy of a PTO stamped postcard.

Prompt consideration and entry of this Letter and enclosure is respectfully requested.

Respectfully submitted,

Date: Sept. 17, 2004

By: \_\_\_\_\_

Emily Miao  
Reg. No. 35,285

McDonnell Boehnen Hulbert & Berghoff LLP  
300 South Wacker Drive, 32nd Floor  
Chicago, IL 60606  
Telephone: (312) 913-0001  
Facsimile: (312) 913-0002



Hon. Commissioner of  
Patents and Trademarks

S/N—09/975,376

Atty EM

Re: Applicant - Mirkin, et al.

Case No. 00-713-12

**Nanoparticles Having Oligonucleotides Attached Thereto and Uses Therefor**  
**VIA HAND DELIVERY TO EXAMINER JEZIA RILEY, GROUP ART UNIT 1637**

Sir:

Please place the Patent Office receipt stamp hereon and mail to acknowledge receipt of:

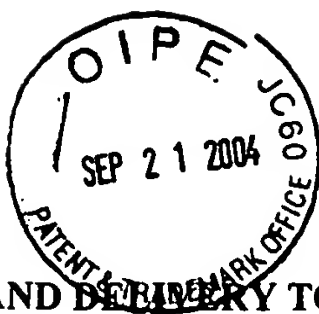
- ☒ Transmittal Letter
- ☒ Sixth Supplemental Information Disclosure Statement
- ☒ U.S. PTO 1449 Form with copies of 29 references

**Binders IX-XI**

**Fee Enclosed**  
\$ 0.00

Respectfully,  
McDonnell Boehnen Hulbert & Berge  
Attorney for Applicant

RECEIVED  
TECH CENTER 1600  
02 SEP -9 PM 2:51/9900



VIA HAND DELIVERY TO EXAMINER JEZIA RILEY

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
(Case No. 00-713-i12)

In re Application of:

Chad A. Mirkin, et al.

Serial No.: 09/975,376

Filed: October 11, 2001

For: NANOPARTICLES HAVING  
OLIGONUCLEOTIDES ATTACHED  
THERETO AND USES THEREFOR

)  
)  
) Examiner: Jezia Riley  
)  
) Group Art Unit: 1637  
)  
) Confirmation No. 9821  
)  
)  
)

TRANSMITTAL LETTER

Commissioner for Patents  
Washington, D.C. 20231

Sir:

In regard to the above-identified application, we are transmitting herewith the attached:

- a) Sixth Supplemental Information Disclosure Statement
- b) U.S. PTO 1449 Form with copies of 29 references
- c) Return Receipt Postcard

2. With respect to fees:

- a) No fees are due.
- b) General Authorization: Please charge any underpayment or credit any overpayment our Deposit Account, No. 13-2490.

Date:

9/6/02

Respectfully submitted,

Emily Miao  
Registration No. 35,285



3. Goldberg, et al., U.S. Patent No. 6,203,989, issued March 20, 2001
4. Bawendi, et al., U.S. Patent No. 6,251,303, issued June 26, 2001.
5. Abbott, et al., U.S. Patent No. 6,277,489, issued August 21, 2001.
6. Bawendi, et al., U.S. Patent No. 6,306,610, issued October 23, 2001
7. Mirkin, et al, U.S. Patent No. 6,361,944, issued March 26, 2002.
8. Wagner, et al., U.S. Patent No. 6,365,418, issued April 02, 2002
9. Mirkin, et al., U.S. Patent No. 6,417,340, issued July 09, 2002
10. WO 93/25709 published 23 December 1993.
11. WO 98/04740 published 5 January 1998
12. WO 98/17317 published 30 April 1998
13. WO 99/60169 published 25 November 1999
14. WO 00/33079 published 8 June 2002
15. WO 01/00876 published 4 January 2001
16. WO 01/51665 published 19 July 2001
17. WO 01/73123 published 4 October 2001
18. WO 01/86301 published 15 November 2001
19. WO 02/04681 published 17 January 2002
20. WO 02/18643 published 7 March 2002
21. WO 02/36169 published 10 May 2002
22. WO 02/46483 published 13 June 2002
23. WO 02/46472 published 13 June 2002
24. Letsinger, R., et al., "Chemistry of Oligonucleotide-Gold Nanoparticle Conjugates," *Phosphorus, Sulfur and Silicon*, Volume 144, p. 359-362 (1999)

25. Letsinger, R., et al., "Use of a Steroid Cyclic Disulfide Anchor in Constructing Gold Nanoparticle—Oligonucleotide Conjugates," *Bioconjugate Chem*, p. 289-291 (2000)
26. Li Z., et al., "Multiple thiol-anchor capped DNA-gold nanoparticle conjugates," *Nucleic Acids Research*, Volume 30, p. 1558-1562 (2002)
27. Nuzzo R., et al., "Spontaneously Organized Molecular Assemblies. 3. Preparation and Properties of Solution Adsorbed Monolayers of Organic Disulfides on Gold Surfaces," *J. Am Chem. Soc.*, Volume 109, p. 2358-2368 (1987)
28. Otsuka, H, et al., "Quantitative and Reversible Lectin-Induced Association of Gold Nonoparticles Modified with  $\alpha$ -Lactosyl- $\omega$ -mercapto-poly(ethyleneglycol)," *J. Am Chem. Soc.*, Volume 123, p. 8226-8230 (2001).
29. Wuelfing, P, et al, "Nanometer Gold Clusters Protected by Surface-Bound Monolayers of Thiolated Poly(ethylene glycol) Polymer Electrolyte," *J. Am. Chem. Soc.*, Volume 120, p. 12696-12697 (1998)

In accordance with MPEP Sections 609 and 707.05(b), it is requested that each document cited (including any cited in applicant's specification which is not repeated on the attached Form PTO-1449) be given thorough consideration and that it be cited of record in the prosecution history of the present application by initialing on Form PTO-1449. Such initialing is requested even if the Examiner does not consider a cited document to be sufficiently pertinent to use in a rejection, or otherwise does not consider it to be prior art for any reason, or even if the Examiner does not believe that the guidelines for citation have been fully complied with. This is requested so that each document becomes listed on the face of the patent issuing on the present application.

The present Disclosure Statement is being submitted in compliance with 37 CFR 1.56 insofar as an Examiner might consider any of the cited documents important in deciding whether to allow the application to issue as a patent, but the citation of each document is not to be construed as an admission that such document is necessarily relevant or prior art. No representation is intended

that the cited documents represent the results of a complete search, and it is anticipated that the Examiner, in the normal course of examination, will make an independent search and will determine the best prior art consistent with 37 CFR 1.104(a) and 1.106(b) and, in the course of each search, will review for relevance every document cited on the attached form even if not initialed.

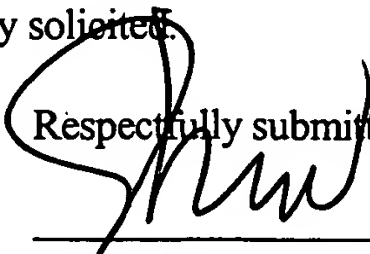
Early and favorable consideration is earnestly solicited.

Dated: \_\_\_\_\_

9/6/02

McDonnell Boehnen Hulbert & Berghoff  
300 South Wacker Drive  
Chicago, Illinois 60606  
Telephone : (312) 913-0001  
Facsimile: (312) 913-0002

Respectfully submitted,



Emily Miao  
Registration No. 35,285

FORM PTO-1449  
(Rev. 2-32)U.S. Department of Commerce  
Patent and Trademark Office

Atty. Docket No.

00-713-12

Serial No.

09/975,376

INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT

(Use several sheets if necessary)

Applicant:

Chad A. Mirkin, et al.

Filing Date:

October 11, 2001

Group:

1637

## U.S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
	1.	5,830,986	11/03/98	Merrill, et al.	528	332	10/28/96
	2.	5,900,481	05/04/99	Lough, et al.	536	55.3	11/06/96
	3.	6,203,989	03/20/01	Goldberg, et al.	435	6	03/25/99
	4.	6,251,303	06/26/01	Bawendi, et al.	252	301.4R	09/18/98
	5.	6,277,489	08/21/01	Abbott, et al.	428	403	12/04/98
	6.	6,306,610	10/23/01	Bawendi, et al.	435	7.1	09/17/99
	7.	6,361,944	03/26/02	Mirkin, et al.	435	6	06/25/99
	8.	6,365,418	04/02/02	Wagner, et al.	436	518	05/18/00
	9.	6,417,340	07/09/02	Mirkin, et al.	536	23.1	10/20/00

## FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation Yes No	
	10.	WO 93/25709	23 December 1993	PCT				
	11.	WO 98/04740	5 February 1998	PCT				
	12.	WO 98/17317	30 April 1998	PCT				
	13.	WO 99/60169	25 November 1999	PCT				
	14.	WO 00/33079	8 June 2002	PCT				
	15.	WO 01/00876	4 January 2001	PCT				

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

FORM PTO-1449  
(Rev. 2-32)U.S. Department of Commerce  
Patent and Trademark Office

Atty. Docket No.

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18.	WO 01/86301	15 November 2001	PCT			
19.	WO 02/04681	17 January 2002	PCT			
20.	WO 02/18643	7 March 2002	PCT			
21.	WO 02/36169	10 May 2002	PCT			
22.	WO 02/46483	13 June 2002	PCT			
23.	WO 02/46472	13 June 2002	PCT			

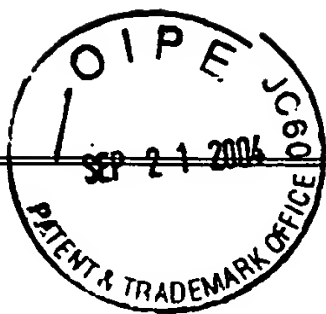
## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

24.	Letsinger, R., et al., "Chemistry of Oligonucleotide-Gold Nanoparticle Conjugates," <i>Phosphorus, Sulfur and Silicon</i> , Volume 144, p. 359-362 (1999)
25.	Letsinger, R., et al., "Use of a Steroid Cyclic Disulfide Anchor in Constructing Gold Nanoparticle—Oligonucleotide Conjugates," <i>Bioconjugate Chem</i> , p. 289-291 (2000)

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(Rev. 2-32)

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**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

26.	Li Z., et al., "Multiple thiol-anchor capped DNA-gold nanoparticle conjugates," <i>Nucleic Acids Research</i> , Volume 30, p. 1558-1562 (2002)
27.	Nuzzo R., et al., "Spontaneously Organized Molecular Assemblies. 3. Preparation and Properties of Solution Adsorbed Monolayers of Organic Disulfides on Gold Surfaces," <i>J. Am Chem. Soc.</i> , Volume 109, p. 2358-2368 (1987)
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